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ABSTRACT

A study investigated urban childrens' (N=150) responses to the science/technology role models on the television program "3-2-1 Contact" in relation to their gender, sex-role stereotype, and interest in science. Two primary questions were investigated: (1) What are the differences between boys and girls in relation to stereotypic self-definition (in terms of masculine and feminine trait stereotypes), stereotypes of males and females, and interest in mechanical and investigative aspects of science; and (2) What are the differences between boys and girls in relation to responses to same-sex and opposite-sex role models? When sex-role stereotypes and interest in science were considered, boys saw themselves and other males as more masculine than did girls. Boys had greater interest in mechanical aspects of science. Boys went down in mechanical interest and girls went up following viewing of the series. When responses to role models were considered, boys preferred and remembered more about males while girls had higher opinions of females. Attention was greater to role models at the beginning of the series. Both appeal and attitude were greater for the female models at the beginning and the male models at the end. (Author/JN)

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Sex-Role Stereotypes, Interest in Science and Responses of Sixth Graders to Scientists/ Technologists on T.V.'s "3-2-1 Contact"

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Recent studies have concluded that appropriate role models are important in increasing interest and participation of girls in science. Exposing children, especially girls, to nonstereotypic views and broader options regarding interest in science is a means of familiarizing and involving them with an area that is accessible and open to their participation. A new television series "3-2-1 Contact" responds to this need by providing girls with a host of male and female role models - scientists and technologists of all ages who enjoy their scientific involvement. These role models present much of the science content of the show by describing and demonstrating scientific principles.

This study investigated children's responses to the "3-2-1 Contact" science/ technology role models in relation to the gender, sex-role stereotypes and interest in science of these children. During the spring of 1980 approximately 150 urban sixth graders viewed the ahlf hour Friday summary show of each of the 13 weeks of "3-2-1 Contact" (available on video cassette) during school hours in classroom settings.

Prior to and after viewing all 13 "3-2-1 Contact" programs the measuring instruments regarding sex-role stereotypes and

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interest in science were administered. Spence's Extended Intermediate Personal Attributes Questionniare (EPAQ-I) was used to measure the degree of self-definition and gender definition of sex-role trait stereotypes. An Interest in Science Scale (ISS) was used to measure liking for mechanical and inwstigative aspects of science. A Response to Role Model Scale (RRMS) was used to measure Appeal, Attention, and Attitude toward the male and female science/technology role models.

Two primary questions were investigated:

1)What are the differences between boys and girls with respect to sex-role stereotypes and interest in science, and is there any change in these differences following exposure to the "3-2-1 Contact" program intervention?

2)What are the differences between boys and girls with respect to responses to same-sex and opposite-sex role models at the beginning of the series and at the end of the series?

For question 1 a 2 X 2 multivariate anlysis of variance was used to examine the relationship between the independent variables a)gender (boys and girls), and time of testing (pre and post) and the dependent variables sex-role stereotypes and interest in science. Statistically significant gender and time of testing differences were found. Univariate analyses were then carried out to further explore the relationship among the variables. The results revealed that boys rated themselves as being more stereotypically masculine than girls did. Boys also rated masculine traits as more stereotypically

like men than did the girls. In regard to feminine traits there was no difference between boys and girls in how they rated traits both for themselves and for other males and females. Both boys and girls viewed themselves as more stereotypically masculine on the posttest than on the pretest. Further, after viewing "3-2-1 Contact" boys and girls viewed feminine traits less stereotypically.

On the Interest in Science subscale boys were found to have a much higher interest in mechanical things than girls. However, there were no gender differences found regarding interest in investigative aspects of science. Although there were no significant interactions at the multivariate level gender and time of testing interacted on the mechanical subscale. Boys showed less interest on the posttest while girls showed more interest in the mechanical aspects of science.

For question 2 a 2 X 2 X 2 multivariate analysis of variance examined the differences between boys and girls with respect to the responses to role models. The analysis compared a) gender (boys and girls), b)time of testing (beginning and end) and c)sex of role model (male or female) to the Appeal, Attention, and Attitude responses to the role models. Statistically significant differences were found at the multivariate level for the time of testing and sex of role model comparisons, gender by time of testing, gender by sex of role model,and time of testing by sex of role model. A follow up with univariate analyses and tests for simple effects yielded the following results. At the beginning of the "3-2-1 Contact" series female role models were found to be more appealing than the male role models while at the end of the series, male role models were perceived as

being more appealing than female role models. Although boys and girls preferred same-sex models, Appeal and Attitude to role models overall decreased from beginning to end. Attention was greater to role models at the beginning than the end. Although girls had amore positive Attitude toward female role models, Atttiude toward females decreased from beginning to end.

Examination of open-ended Appeal and Attention responses revealed that positive Appeal was related to a combination of liking the behavior/activity, personality, and verbalizations of the role models. Attention mostly focused on appearance and behavior/activity of the role models. Overall, as Appeal and Attention diminished, especially to female role models, comments decreased in number. Girls, in particular, commented negatively about behavior/activity they did not enjoy, unclear verbalizations, and unattractive personality and appearance.

A multiple regression analysis examined the relationship between gender, sex-role stereotypes, and interest in science and responses to the role models. Investigative interest in science was the only variable that accounted for significant portions of va ance, especially in regard to Appeal of the role models at the beginning and end and ATitude toward the role models at the end.Sex-role stereotypes were only slightly related to the responses. Positive Attitude and Appeal of the female models at the beginning was accounted for by a less stereotypic view of masculine traits.

In conclusion, boys and girls already interested in investigative science responded positively to the role models. Second, girls who exhibited masculine traits and perceived masculine traits less stereotypically were more receptive to female role models. Third, although boys and girls liked same-sex models, Appeal of and Attitude toward female models decreased from beginning to end, questioning the effectiveness of these selected role models. Responses from the open ended Appeal and Attention questions provided reasons for this diminished Appeal and Attention. Changing feelings and opinions about specific role models were related to aspects of personality, verbalizations, appearance, and behavior/activity. Therefore, if role models are to be the vehicles to interest more girls in science, careful attention needs to be focused on the personal qualities of the role models.